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Mathematics - 102

Assignment - 1

Q:1 If $U = \{ x : x < 10 ; x \in N \}$,
$A = \{ x : x = 2y ; y < 5 \}$
$B = \{3, 6, 9\}$ Then verify
$(A \cap B)' = A' \cup B'$

Q:2 If $A = \{ x \mid x^2 - 17x + 16 = 0 \}$
$B = \{ x \mid x^2 - 7x + 12 = 0 \}$ then
find $A \Delta B$

Q.3 If $A = \{ x \mid x \leq 3 ; x \in N \}$
$B = \{ x \mid 1 < x < 5 ; x \in N \}$ and
$C = \{ x \mid x$ is an even positive integer less than $10 \}$ then verify
$A \cap (B - C) = (A \cap B) - (A \cap C)$

Q.4 In a College there are 500 girls and of them 300 have taken Economics and 250 have taken Mathematics. How many of them have taken both the Subjects? All girls have taken at lest one of these of two subjects.

5. If $A = \{x \mid x \leq 3 ; x \in N\}$
$B = \{x \mid 1 < x < 5, x \in N\}$ and
$C = \{x \mid x$ is an even positive integer less than 10 $\}$ then verify
$A \cap (B - C) = (A \cap B) - (A \cap C)$.

6. If $A = \{x \leq 3 ; x \in N\}$
$B = \{x : 1 \leq x \leq 2 ; x \in Z\}$ and
$C = \{x : x^2 - 5x + 6, x \in R\}$ considering
$U = R$, verify DeMorgan's law for union.

7. In a class of 42 students, each play at least one of the three games. Cricket, ~~20 play Hockey~~ Hockey and Football. It is found that 14 play cricket, 20 play Hockey & 24 play Football, 3 play both cricket & Football. 2 play both Hockey & Football. None play all the ~~tree~~ three games. Find the no. of students who play Cricket not Hockey.